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LIST OF ABBREVIATIONS, ACRONYMS AND DEFINITIONS

AC - Alternating Current

Active Essential Personnel - Those individuals whose activities contribute directly to the performance of a potentially hazardous operation that is actually under way, and whose presence is mandatory for completion of the operation.

Actual Burst Pressure - The pressure at which pressure system components rupture while undergoing pressurize-to-burst testing.

ADCS - Advanced Data Acquisition System

ADP - Automated Data Processing

Aircraft Impact Probability - the probability of an object impacting an aircraft located at the edge of the aircraft hazard area.

ARB - Air Worthiness Review Board

AST – Associate Administrator for Commercial Space Transportation

Ballistic Coefficient - a number describing the descent characteristics of an object by combining the weight of the object with the aerodynamic drag coefficient and the reference area of the object.

Ballistic Wind - the average wind velocity vector over a specified altitude range.

Burst Factor - This quantity is equal to the MAWP divided by the design burst pressure.

Casualty Expectation - The probabilistic number of casualties due to conduct of a mission.

Caution Time - That time period when any hazardous device or system is present in the hazard area and is in a safe inactive state. When a caution time exists, non-participating personnel are allowed to enter the launch area only when authorized by the Operations Safety Supervisor. Active-essential and and by-essential personnel continue working during a caution time.

C_l and **C_d** - Aerodynamic lift coefficients

CSLA – Commercial Space Launch Act

C_{mα} - Aerodynamic moment coefficient

C_mq - Aerodynamic pitch coefficient

C_{Nα} - Aerodynamic normal force coefficient

COMET - Commercial Experiment Transporter

Commonly Accepted Risk Level - 1.0×10^{-6} casualties per mission

Coriolis - the displacement of the impact point due to the earth's rotation during the vehicle flight.

Danger Area - That area including impact areas, abort areas, storage areas, or Danger Areas resulting from a system malfunction in which the hazards from impacting objects, debris, or toxic materials exceed the established maximum acceptable risk level.

CSLA - Commercial Space Launch Act

⁰ - degree, degrees

Descent Vector - the horizontal displacement vector of a descending object from the flight termination point to impact.

Design Burst Pressure - The pressure is a calculated test pressure that pressurized components shall withstand without rupture to demonstrate its design adequacy in a qualification test.

Dispersion - the statistical deviation of the actual impact point from the predicted impact point.

Dwell Time - the amount of time for the IIP to pass over a given land area.

Electro-explosive Device (EED) - An electric initiator or other component in which electrical energy is used to cause initiation of explosives contained therein.

Emergency System/Component - An emergency system component is any system/component which prevents a hazardous event from occurring or escalating. These systems normally experience very few cycles, but their performance is extremely safety critical. Typical emergency components are relief valves and shut-off valves. Typical emergency systems are fire suppression systems and emergency purge/vent systems

ER - Eastern Range

ESBM - Equipment Section Boost Motor

Failure - a system not operating as planned.

Flight Hardware - includes all propellant tanks, pressure vessels, lines and components that constitute airborne equipment on a launch vehicle or payload.

Flight Hazard Area - The operational area within which the risk due to impacting object(s) may exceed the established risk criteria.

Flight Safety - A philosophy and methodology whereby rocket, balloon, drone, and aircraft flight operations can be performed in a reasonable and prudent manner without undue risk to people or property or embarrassment to NASA or the United States Government.

FSO – Flight Safety Officer

Ft - foot, feet

FTS - Flight Termination Systems

Ground Safety - Those safety considerations, procedures, and resultant restrictions associated with hazardous systems during storage, handling, pre-launch, launch, and recovery/abort operations, whereby operations can be performed in a reasonable and prudent manner without undue risk to people or property or the environment.

GSE - Ground Support Equipment

GSFC - Goddard Space Flight Center

GTO - Geotransfer Orbit

Hangfire - A launch attempt where current to the vehicle initiator was delivered by the firing system and the vehicle failed to ignite as planned.

HAPS - Hydrazine Auxiliary Propulsion System

Hazard Area - the operational area within which the risk due to impacting objects may exceed the established risk criteria.

HF - High Frequency

HQ - Headquarters

IG - Inertial Guidance

Impact Area - The operational area within which one or more objects are predicted to impact in the vicinity of each other.

IIP - Instantaneous Impact Point

Inherently Safe - The predicted trajectory of the vehicle is based solely on the launch and dispersion parameters and on known system errors.

Instantaneous Impact Point (IIP) - The point at which an object would impact if thrusting were stopped at a given time.

IRIG - Inter-Range Instrumentation Group

IRIS - Silicon Graphics Computer System

ISA - Individual Support Annex

Kg - kilograms

Km - kilometers

Land Impact Probability - the probability of an object impacting in a land area.

Launch Abort - Premature and abrupt termination of a launch attempt because of existing or imminent degradation of mission success probability or safety requirements.

Launch Vehicle - Any rocket, rocket system, or balloon that is used to launch a suborbital or orbital payload, probe, satellite, or other experiment.

lb - pound

lbf - pound per foot

lbs – pounds(stopped here, Aerial 11 from Helv 11)

Leak-Before-Burst (LBB) - A fracture mechanics design concept in which it is shown that any initial flaw shall grow through the wall of the pressure vessel rather than bursting and causing catastrophic failure.

LEO - Low Earth Orbit

Lethal Area - the "footprint" of an impacting object.

LLV - Lockheed Launch Vehicle

LTA - Lighter-Than-Air

LTAS - Launch Trajectory Acquisition System Data

Maximum Allowable Working Pressure (MAWP) - The maximum operating pressure, to which operational personnel may be exposed, for a pressure system (vessel, tubing, piping, flex hose or component). This pressure is synonymous with Maximum Expected Operating Pressure (MEOP), as it is used and defined in MIL-STD-1522A.

Maximum Design Operating Pressure (MDOP) - The system pressure rating based on structural and functional reliability. This is the pressure at which relief devices are set and is equal to 110 percent MOP.

Maximum Expected Operating Pressure (MEOP) - This term, as defined in MIL-STD-1522A, is synonymous with MAWP. (See the definition for MAWP, as given above.)

Maximum Operating Pressure (MOP) - The maximum pressure a system shall be subjected to during static and dynamic conditions. Usually this pressure is less than or equal to MAWP. This pressure may except MAWP as long as pressurization(s) are performed remotely. However, under no conditions shall MOP exceed proof pressure.

MCDS - Mobile Command Destruct System

MD - Maryland

Megger Test - A measurement performed on EED's using a megohmmeter to determine the pin-to-case insulation resistance. The test is performed at a known voltage (normally 500 volts) to verify that the insulation shall not break down and permit EED ignition in this mode.

MGTAS - Medium Gain Telemetry Acquisition Systems

MHz - Megahertz

Misfire - A launch attempt in which current was not delivered to the vehicle initiator.

MRCS - Mobile Range Control System

MRR - Mission Requirements Request

MRTIIPS – Mobile Range Safety Real-Time Instantaneous Impact Prediction System

N - Nitrogen

NACA - National Advisory Committee for Aeronautics

NASA - National Aeronautics and Space Administration

NASCOM - NASA Communications Network

NE - Northeast

NLT - Not Later Than

nm - nautical miles

NOTAMS - An advisory issued to airmen listing restricted or hazardous airspace during certain times.

NOTMARS - An advisory issued to mariners listing restricted or hazardous areas during certain times.

NSBF - National Scientific Balloon Facility

NSWC - Naval Surface Weapons Center

OAM - Orbital Adjust Module

O₂ - Oxygen

OSD - Operations and Safety Directive

OSO - Office of Space Tracking

OSS - Operations Safety Supervisor

PAF - Payload Attach Fitting

Participating Personnel - Those individuals who are participating in the operation.

PCM - Pulse Code Modulation

PC - Personal Computer

PIK - Precision Injection Kit

PLF - Payload Fairing

Population Density - the number of people per square mile.

Power Switching - Power transfers where the net energy change exceeds 1.5 volts or 10 milliamperes.

PP - Present Position

PRD - Program Requirements Document

Probability of Impact - the probability of an object impacting in a defined area.

Proof Pressure - The test pressure applied to pressure systems or individual components without failure, leakage, or permanent deformation.

Psf - pounds per square foot

Public - All people that are not participants in the operation.

Range Safety - The ground and flight safety control associated with all phases of rocket, balloon, and aircraft operations.

RF - Radio Frequency

Risk - the likelihood of a particular unplanned and undesired outcome.

RSDS - Range Safety Display System

RSO - Range Safety Officer

RS - Recovery System

Ship Impact Probability - the probability of an object impacting a ship.

SM - Service Module

System Initiator - Any device that initiates the action of a system. This includes but is not limited to electro-explosive devices, non-explosive initiators, and exploding bridgewire initiators.

TM – Telemetry

TNT Equivalency - The explosive energy per unit mass of the energetic material in question (propellants in out case) divided by the energy per unit mass of TNT; this number is usually expressed as a percentage.

TOTS - Transportable Orbital Tracking Station

TV - Television

U.S. - United States

UHF - Ultra High Frequency

VCSPA – Virginia Commercial Space Flight Authority

VHF - Very High Frequency

WFF - Wallops Flight Facility

WICC – Wallops Integrated Control Center

WOTS - Wallops Orbital Tracking Station

WR - Western Range

WSMR - White Sands Missile Range